

What is claimed is:

1. A copyright protection method for digital media, the method comprising the steps of:
embedding a secrete watermark into an original media content, said secrete
5 watermark being generated with a secrete key of a content owner and representing an
authorization signature of said owner;
embedding a first public watermark into said secrete watermark-embedded media
content, said first public watermark being generated with a first private key of said owner and
certifying a first copyright of said owner; and
10 embedding a second public watermark into said first public watermark-embedded
media content, said second public watermark being generated with a second private key of a
content distributor and certifying a second copyright of the distributor.
2. The method of claim 1, further comprising the steps of:
extracting said secrete watermark from said second public watermark-embedded
15 media content; and
decrypting said extracted watermark with said secrete key.
3. The method of claim 1, further comprising the steps of:
extracting said first public watermark from said second public watermark-
20 embedded media content; and
decrypting said extracted watermark with a first public key corresponding to said
first private key in order to obtain said first copyright.
- 25 4. The method of claim 3, wherein said first public key is published by said content
owner.
5. The method of claim 1, further comprising the steps of:
extracting said second public watermark from said second public watermark-
30 embedded media content; and
decrypting said extracted watermark with a second public key corresponding to
said second private key in order to obtain said second copyright.
- 35 6. The method of claim 5, wherein said second public key is published by said content
distributor.

7. The method of claim 1, wherein said secrete watermark is readable by any third party having said secrete key.

5 8. The method of claim 1, wherein said first public watermark is readable by any third party having a first public key which corresponds to said first private key and is published by said content owner.

10 9. The method of claim 1, wherein said second public watermark is readable by any third party having a second public key which corresponds to said second private key and is published by said content distributor.

15 10. A copyright protection method for digital media, the method comprising the steps of:

embedding a secrete watermark into an original media content, said secrete watermark being generated with a secrete key of a content owner and representing an authorization signature of said owner;

embedding a first public watermark into said secrete watermark-embedded media content, said first public watermark being generated with a first private key of said owner and certifying a first copyright of said owner;

embedding an informational watermark into said first public watermark-embedded media content, said informational watermark including additional information related to said original content; and

embedding a second public watermark into said informational watermark-embedded media content, said second public watermark being generated with a second private key of a content distributor and certifying a second copyright of said distributor.

25 11. The method of claim 10, further comprising the steps of:

extracting said secrete watermark from said second public watermark-embedded media content; and

decrypting said extracted watermark with said secrete key.

30 12. The method of claim 10, further comprising the steps of:

extracting said first public watermark from said second public watermark-embedded media content; and

35 decrypting said extracted watermark with a first public key corresponding to said first private key in order to obtain said first copyright.

13. The method of claim 12, wherein said first public key is published by said content owner.

14. The method of claim 10, further comprising the steps of:

5 extracting said informational watermark from said second public watermark-embedded media content; and

extracting said additional information from said extracted watermark.

15. The method of claim 10, further comprising the steps of:

10 extracting said second public watermark from said second public watermark-embedded media content; and

decrypting said extracted watermark with a second public key corresponding to said second private key in order to obtain said second copyright.

16. The method of claim 15, wherein said second public key is published by said content distributor.

17. The method of claim 10, wherein said secrete watermark is readable by any third party having said secrete key.

20 18. The method of claim 10, wherein said first public watermark is readable by any third party having a first public key which corresponds to said first private key and is published by said content owner.

25 19. The method of claim 10, wherein said informational watermark is readable by any third party without any key.

30 20. The method of claim 10, wherein said second public watermark is readable by any third party having a second public key which corresponds to said second private key and is published by said content distributor.